

35744  
**ORIGINAL**

(red)

**Facility Name:** Bally Site

**Location:** Route 100, Bally, Pennsylvania

**EPA Region:** III

**Person(s) in Charge of the Facility:**

**Name of Reviewer:** Charles Meyer      **Date:** August 29, 1985

**General Description of the Facility:**

The Bally Site consists of the borough of Bally well field, located off Route 100. The Bally well field is the public water source for the borough of Bally and uses groundwater, as do all domestic and municipal supplies within a 3-mile radius. Well no. 3 in Bally's system was found to be contaminated with up to 3,000 ppb trichloroethylene from an unknown source.

Scores:     $S_M = 37.93$                       ( $S_{gw} = 65.62$        $S_{sw} = 0$                        $S_a = 0$ )  
               $S_{FE} = 0$   
               $S_{DC} = 0$

**FIGURE 1**  
**HRS COVER SHEET**

*Sue Russell*  
*Sep. 9, 1985*

AR100002

ORIGINAL  
(red)

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0 <u>45</u>	1	45	45	3.1	
If observed release is given a score of 45, proceed to line <b>4</b> . If observed release is given a score of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 3	2		6		
Net Precipitation	0 1 2 3	1		3		
Permeability of the Unsaturated Zone	0 1 2 3	1		3		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score				15		
<b>3</b> Containment	0 1 2 3	1		3	3.3	
<b>4</b> Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 15 <u>18</u>	1	18	18		
Hazardous Waste Quantity	0 <u>1</u> 2 3 4 5 6 7 8	1	1	8		
Total Waste Characteristics Score			19	26		
<b>5</b> Targets					3.5	
Ground Water Use	0 1 2 <u>3</u>	3	9	9		
Distance to Nearest Well/Population Served	0 4 8 8 10 12 16 18 20 24 30 32 <u>35</u> 40	1	35	40		
Total Targets Score			44	49		
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>			37,620	57,330		
<b>7</b> Divide line <b>6</b> by 57,330 and multiply by 100			S <sub>gw</sub> = 65.62			

FIGURE 2  
GROUND WATER ROUTE WORK SHEET

Sue Russell  
Sept. 9, 1985  
100003

AR100003

# ORIGINAL

(red)

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
<b>1</b> Observed Release	0	45	1	0	45	4.1
If observed release is given a value of 45, proceed to line <b>4</b> . If observed release is given a value of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics						4.2
Facility Slope and Intervening Terrain	0	1	2	3	1	3
1-yr. 24-hr. Rainfall	0	1	2	3	1	3
Distance to Nearest Surface Water	0	1	2	3	2	6
Physical State	0	1	2	3	1	3
Total Route Characteristics Score				0	15	
<b>3</b> Containment	0	1	2	3	1	4.3
<b>4</b> Waste Characteristics						4.4
Toxicity/Persistence	0	3	6	9	12	15
Hazardous Waste Quantity	0	1	2	3	4	5
	6	7	8		1	8
Total Waste Characteristics Score				0	26	
<b>5</b> Targets						4.5
Surface Water Use	0	1	2	3	3	9
Distance to a Sensitive Environment	0	1	2	3	2	6
Population Served/Distance to Water Intake Downstream	0	4	6	8	10	1
	12	16	18	20		40
	24	30	32	35	40	
Total Targets Score				0	55	
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b>					0	
If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>					64,350	
<b>7</b> Divide line <b>6</b> by 64,350 and multiply by 100					S <sub>sw</sub> = 0	

FIGURE 7  
SURFACE WATER ROUTE WORK SHEET

*Sue Russell*  
*July 12, 1985*

AR100004 300064

ORIGINAL  
(red)

Air Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
<b>1</b> Observed Release	0	45	1	0	45	5.1
Date and Location:						
Sampling Protocol:						
If line <b>1</b> is 0, the $S_a = 0$ . Enter on line <b>5</b> . If line <b>1</b> is 45, then proceed to line <b>2</b> .						
<b>2</b> Waste Characteristics						5.2
Reactivity and Incompatibility	0	1 2 3	1	0	3	
Toxicity	0	1 2 3	3	0	9	
Hazardous Waste Quantity	0	1 2 3 4 5 6 7 8	1	0	8	
Total Waste Characteristics Score				0	20	
<b>3</b> Targets						5.3
Population Within 4-Mile Radius	{ 0 9 12 15 18 21 24 27 30		1	0	30	
Distance to Sensitive Environment	0 1 2 3		2	0	6	
Land Use	0 1 2 3		1	0	3	
Total Targets Score				0	39	
<b>4</b> Multiply <b>1</b> x <b>2</b> x <b>3</b>				0	35,100	
<b>5</b> Divide line <b>4</b> by 35,100 and multiply by 100				$S_a = 0$		

FIGURE 9  
AIR ROUTE WORK SHEET

*Sue Russell*  
*July 12, 1985*

AR100005 100005

ORIGINAL  
(red)

	s	s <sup>2</sup>
Groundwater Route Score (S <sub>gw</sub> )	65.62	4305.98
Surface Water Route Score (S <sub>sw</sub> )	—	—
Air Route Score (S <sub>a</sub> )	—	—
$s_{gw}^2 + s_{sw}^2 + s_a^2$		4305.98
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2}$		65.62
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2} / 1.73 = S_M =$		37.93

FIGURE 10  
WORKSHEET FOR COMPUTING S<sub>M</sub>

Sue Russell  
Sept. 9, 1985

AR100006

100006

ORIGINAL

(100)

Fire and Explosion Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
<b>1</b> Containment	1	3	1	0	3	7.1
<b>2</b> Waste Characteristics						7.2
Direct Evidence	0	3	1		3	
Ignitability	0	1 2 3	1		3	
Reactivity	0	1 2 3	1		3	
Incompatibility	0	1 2 3	1		3	
Hazardous Waste Quantity	0	1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				0	20	
<b>3</b> Targets						7.3
Distance to Nearest Population	0	1 2 3 4 5	1		5	
Distance to Nearest Building	0	1 2 3	1		3	
Distance to Sensitive Environment	0	1 2 3	1		3	
Land Use	0	1 2 3	1		3	
Population Within 2-Mile Radius	0	1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0	1 2 3 4 5	1		5	
Total Targets Score				0	24	
<b>4</b> Multiply <b>1</b> x <b>2</b> x <b>3</b>				0	1,440	
<b>5</b> Divide line <b>4</b> by 1,440 and multiply by 100				SFE = 0		

FIGURE 11  
FIRE AND EXPLOSION WORK SHEET

*Sue Russell*  
*July 12, 1985*

AR100007 100007

# ORIGINAL

(red)

Direct Contact Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi- plier	Score	Max. Score	Ref. (Section)
<input type="checkbox"/> 1 Observed Incident	0	45	1	0	45	8.1
If line <input type="checkbox"/> 1 is 45, proceed to line <input type="checkbox"/> 4 If line <input type="checkbox"/> 1 is 0, proceed to line <input type="checkbox"/> 2						
<input type="checkbox"/> 2 Accessibility	0	1 2 3	1	0	3	8.2
<input type="checkbox"/> 3 Containment	0	15	1	0	15	8.3
<input type="checkbox"/> 4 Waste Characteristics Toxicity	0	1 2 3	5	0	15	8.4
<input type="checkbox"/> 5 Targets						8.5
Population Within a 1-Mile Radius	0	1 2 3 4 5	4		20	
Distance to a Critical Habitat	0	1 2 3	4		12	
Total Targets Score				0	32	
<input type="checkbox"/> 6 If line <input type="checkbox"/> 1 is 45, multiply <input type="checkbox"/> 1 x <input type="checkbox"/> 4 x <input type="checkbox"/> 5 If line <input type="checkbox"/> 1 is 0, multiply <input type="checkbox"/> 2 x <input type="checkbox"/> 3 x <input type="checkbox"/> 4 x <input type="checkbox"/> 5				0	21.600	
<input type="checkbox"/> 7 Divide line <input type="checkbox"/> 6 by 21,600 and multiply by 100				SDC = 0		

FIGURE 12  
DIRECT CONTACT WORK SHEET

*See Russell  
July 12, 1985*

AR100008 100008

ORIGINAL

(red)

June 28, 1982

DOCUMENTATION RECORDS  
FOR  
HAZARD RANKING SYSTEM

**INSTRUCTIONS:** The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible, summarize the information you used to assign the score for each factor (e.g. "Waste quantity equals 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document and for a given point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

**FACILITY NAME:** Bally Site

**LOCATION:** Route 100, Bally, Pennsylvania

**COORDINATES:** Latitude 40° 24' 6"  
Longitude 75° 35' 30"

*Sue Russell*  
*July 12, 1985*

AR100009 100000



ORIGINAL  
(rec)

## GROUND WATER ROUTE

### 1 OBSERVED RELEASE

#### Contaminants detected (5 maximum):

chloroform  
tetrachloroethane  
1,1,1-trichloroethane  
trichloroethene  
1,1-dichloroethene

#### Rationale for attributing the contaminants to the facility:

The above contaminants were detected in one or more of the following wells: Bally municipal well no. 3, Bally municipal well no. 1, Bally Case & Cooler monitoring well, home well located 1000 feet northeast of well no. 3. Although the source of the contamination is not confirmed at present, it is thought to originate from the Bally Case & Cooler property, which was the site of three lagoons used for plant waste disposal.

Reference nos. 2 and 13

\* \* \*

### 2 ROUTE CHARACTERISTICS

#### Depth to Aquifer of Concern

#### Name/description of aquifer(s) of concern:

Municipal well no. 3 was drilled into the Brunswick Formation. According to the Atlas of Preliminary Geologic Quadrangles, East Greenville Quadrangle, the well can be found straddling the Hardyston Formation and the Brunswick Formation. The Brunswick Formation, as an aquifer, ranges in depth from 18 to 500 feet deep. Surrounding geology includes the Hardyston Formation, Leithsville Formation, Limestone Fonglomerate, and gneiss. The geologic units in the vicinity of the site are hydrologically connected. The description of the units in reference no. 7 indicates that all the rock formations have a moderate abundance of fractures. The Brunswick, Hardyston, and Leithsville Formations are fractured in a block type pattern. The granitic gneiss and Limestone Fonglomerate units have an irregular joint pattern. The fractures for all the formations are steeply dipping to vertical and are open. These fractures would interconnect across the rock formation boundaries. Evidence of this condition is a smooth gradient of the water table as it crosses from one formation to another. If these formations were not hydrologically connected, there would likely be a recognized significant change in the well water levels across the geologic formations.

Reference nos. 3, 4, 5, 6, 7, and 8

*Sue Russell*  
*Sep. 9, 1985*

AR100010

100000

ORIGINAL  
(red)

Depth(s) from the ground surface to the highest seasonal level of the saturated zone (water table(s)) of the aquifer of concern:

Depth from the ground surface to the lowest point of waste disposal/storage:

N/A

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

N/A

Mean annual lake or seasonal evaporation (list months for seasonal):

N/A

Net precipitation (subtract the above figures):

N/A

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

N/A

Permeability associated soil type:

N/A

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

N/A

3-AR100011

See Russell  
July 12, 1985  
0001

**ORIGINAL**  
(red)

### 3 CONTAINMENT

#### Containment

Method(s) of waste or leachate containment evaluated:

N/A

Method with highest score:

N/A

\* \* \*

### 4 WASTE CHARACTERISTICS

#### Toxicity and Persistence

<u>Compound(s) evaluated:</u>	<u>Toxicity</u>	<u>Persistence</u>	<u>Matrix value</u>
chloroform	3	3	18
tetrachloroethene	2	2	12
1,1,1-trichloroethane	2	2	12
trichloroethene	2	2	12
1,1-dichloroethene	3	2	15

Compound with highest score:

Chloroform (detected in July 11, 1985 sampling of wells #1<sup>A</sup> and #3<sup>A</sup>  
and well #3 pond)  
Reference nos. 1 and 9, 13

(low levels)

(elevated levels)

#### Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

The total quantity of waste disposed is unknown because the source of contamination is unknown. However, since contamination has been detected, an assigned value of 1 was used for scoring.

Reference nos. 1 and 2

Basis of estimating and/or computing waste quantity:

There is waste present but the amount and source are unknown.

A value of 1 was assigned.

Reference nos. 1 and 2

*Sue Russell*  
*Sept 9, 1985*

AR100012

100012

**ORIGINAL**  
(red)

**5 TARGETS**

**Groundwater Use**

**Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:**

Everyone within a 3-mile radius of the Bally Site is using the aquifer of concern because the areas are hydrologically connected although they may be drawing from different formations. There are no alternate supplies available at the present time.

A value of 3 was assigned.

Reference nos. 10

**Distance to Nearest Well**

**Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:**

The location of the nearest well, municipal well no. 3, is 0 feet.

Reference nos. 2 and 12

**Distance to above well or building:**

The distance is 0 feet. Well no. 3 is drawing from the contaminated aquifer of concern.

A value of 4 was assigned.

Reference nos. 2 and 12

**Population Served by Ground Water Wells Within a 3-Mile Radius**

**Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:**

The population serviced by groundwater within a 1-, 2-, and 3-mile radius of municipal well no. 3 is 1,569 persons, 3,002, and 5,126, respectively.

A value of 35 was assigned.

Reference nos. 1 and 10

*Sue Russell*  
*July 12, 1985*  
1000013  
AR100013

ORIGINAL

(red)

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

None

Total population served by groundwater within a 3-mile radius:

5,126 - computed by using 3.8 people per house. Total house count for a 3-mile radius.

Reference nos. 1 and 10

*See Russell  
July 12, 1985*

**ORIGINAL**

**SURFACE WATER ROUTE**

**(red)**

**1 OBSERVED RELEASE**

**Contaminants detected in surface water at the facility or downhill from it (5 maximum):**

Surface water was not scored because no specific source of contamination can be proved at this time and no surface water samples were taken. Ranking is for the well field itself.

**Rationale for attributing the contaminants to the facility:**

N/A

\* \* \*

**2 ROUTE CHARACTERISTICS**

**Facility Slope and Intervening Terrain**

**Average slope of facility in percent:**

N/A

**Name/description of nearest downslope surface water:**

N/A

**Average slope of terrain between facility and above-cited surface water body in percent:**

N/A

**Is the facility located either totally or partially in surface water?**

N/A

*See Russell  
July 12, 1985*

100015

AR100015

ORIGINAL

Is the facility completely surrounded by areas of higher elevation?

(red)

N/A

1-Year 24-Hour Rainfall in Inches

N/A

Distance to Nearest Downslope Surface Water

N/A

Physical State of Waste

N/A

\* \* \*

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

N/A

Method with highest score:

N/A

\* \* \*

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

N/A

Compound with highest score:

N/A

*Sue Russell*  
*July 12, 1985*

103016

AR100016

**ORIGINAL**

(red)

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

N/A

Basis of estimating and/or computing waste quantity:

N/A

\* \* \*

**5 TARGETS**

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

N/A

Is there tidal influence?

No

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

N/A

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

N/A

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

N/A

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

N/A

*Sue Russell*  
*July 12, 1988*  
AR100017



**ORIGINAL**

(red)

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

N/A

Total population served:

N/A

Name/description of nearest of above water bodies:

N/A

Distance to above-cited intakes, measured in stream miles.

N/A

*Sue Russell*  
*July 12, 1985*

AR100018 100018

**ORIGINAL**  
(red)

**AIR ROUTE**

**1 OBSERVED RELEASE**

**Contaminants detected:**

There was not an observed release during sampling so no scoring was conducted.

**Date and location of detection of contaminants:**

N/A

**Methods used to detect the contaminants:**

N/A

**Rationale for attributing the contaminants to the site:**

N/A

\* \* \*

**2 WASTE CHARACTERISTICS**

**Reactivity and Incompatibility**

**Most reactive compound:**

N/A

**Most incompatible pair of compounds:**

N/A

**Toxicity**

**Most toxic compound:**

N/A

**Hazardous Waste Quantity**

**Total quantity of hazardous waste:**

N/A

*Sue Russell*  
*July 12, 1985*

AR100019

100019

**ORIGINAL**

(red)

Basis of estimating and/or computing waste quantity:

N/A

\* \* \*

### 3 TARGETS

#### Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi    0 to 1 mi    0 to 1/2 mi    0 to 1/4 mi

N/A

#### Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

N/A

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

N/A

Distance to critical habitat of an endangered species, if 1 mile or less:

N/A

#### Land Use

Distance to commercial/industrial area, if 1 mile or less:

N/A

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

N/A

Distance to residential area, if 2 miles or less:

N/A

Distance to agricultural land in production within past 5 years, if 1 mile or less:

N/A

*Sue Russell*  
*July 12, 1985* 000020  
AR100020

**ORIGINAL**

(red)

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

N/A

Is a historic or landmark site (National Register or Historic Places and National Landmarks) within the view of the site?

N/A

*Sue Russell*  
*July 12, 1985*

**ORIGINAL**

(red)

**FIRE AND EXPLOSION**

**1 DOCUMENTED THREAT**

If either a state or local fire marshal has certified that the facility presents a significant fire or explosion threat to the public or to sensitive environments, document the certification:

**Name/affiliation of fire marshal:**

As no source of contamination has been definitively identified, no site has been inspected by a fire marshal.

**Date of Certification:**

N/A

**Comments:**

N/A

If there is a demonstrated fire and explosion threat based on field observations, document the threat:

**Inspectors reporting the threat:**

N/A

**Date of observations:**

N/A

**Methods used to document the threat:**

N/A

**Comments:**

N/A

\*\*\*

**2 CONTAINMENT**

**Containment**

Measure(s) taken to minimize or prevent hazardous substances from catching fire or exploding:

N/A

*Sue Russell*  
*July 12, 1985*

100022

**ORIGINAL**

(red)

**3 WASTE CHARACTERISTICS**

**Direct Evidence**

**Type of measures taken:**

N/A

**Date and location of positive measurements:**

N/A

**Ignitability**

**Compound evaluated:**

N/A

**Compound with highest score:**

N/A

**Reactivity**

**Compounds evaluated:**

N/A

**Compound with highest score:**

N/A

**Incompatibility**

**Compounds evaluated:**

N/A

**Most incompatible pair of compounds:**

N/A

*Sue Russell*  
*July 12, 1985*

AR100023

1000033

**ORIGINAL**  
(red)

Hazardous Waste Quantity

Total quantity of hazardous waste:

N/A

Basis of estimating and/or computing waste quantity:

N/A

**4 TARGETS**

Distance to Nearest Population

N/A

Distance to Nearest Building

N/A

Distance to Nearest Sensitive Environment

Distance to wetlands, if less than 100 feet:

N/A

Distance to critical habitat of an endangered species, if greater than 1/2 mile:

N/A

Land Use

Distance to commercial industrial area, if 1 mile or less:

N/A

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

N/A

Distance to residential area, if 2 miles or less:

N/A

*Sue Russell*  
*July 12, 1985*

AR100024

ORIGINAL

Distance to agricultural land in production within past 5 years, if 1 mile or less: (red)

N/A

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

N/A

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

N/A

Population Within 2-Mile Radius

N/A

Number of Buildings Within a 2-Mile Radius

N/A

*Mae Russell*  
*July 12, 1985*



**ORIGINAL**

(red)

**DIRECT CONTACT**

**1 OBSERVED INCIDENT**

**Pertinent details of incident:**

The source of contamination is unknown; therefore, there is no direct contact other than through the drinking of contaminated water.

**Location:**

N/A

**Date:**

N/A

\* \* \*

**2 ACCESSIBILITY**

**Accessibility to Hazardous Substance**

Measure(s) taken to limit access by humans or animals to the hazardous substances:

N/A

\* \* \*

**3 CONTAINMENT**

**Containment**

Indicate whether the hazardous substance itself is accessible to direct contact:

N/A

\* \* \*

**4 WASTE CHARACTERISTICS**

**Population Within 1-mile Radius**

N/A

*Mr. Russell*  
*July 12, 1985* AR1000266  
303046

ORIGINAL

(red)

Distance to a Critical Habitat of an Endangered Species

There are no known critical habitats of endangered species in the vicinity of the site.

\* \* \*

5 TARGETS

Population Within 1-mile Radius

N/A

Distance to a Critical Habitat of an Endangered Species

N/A

*Sue Russell*  
*July 12, 1985*

000027

AR100027

**ORIGINAL**

(red)

ATTACHMENT 1

AR100028  
100028

## REFERENCES

ORIGINAL

(red)

Reference  
Number

Description of the Reference

1. Uncontrolled Hazardous Waste Site Ranking System; A Users Manual.  
  
National Oil and Hazardous Substances Contingency Plan, Appendix A (40 CFR 300) (47 FR 31219), July 16, 1982.
2. NUS Corporation, FIT III. Site inspection report\*, sample data summary sheets, sample location map, and quality assurance review of data. TDD No. F3-8308-33, September 19, 1983.
3. Pennsylvania Bureau of Topographic and Geologic Survey. Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, East Greenville Quadrangle. (With well locations from the state well inventory system.)
4. Pennsylvania Bureau of Topographic and Geologic Survey Groundwater Inventory System (showing wells located within a 3-mile radius of the Bally Site).
5. The Environment Geology Division. A Guide to DER's Bureau of Topographic and Geologic Survey Water Well Data System.
6. Pennsylvania Bureau of Topographic and Geologic Survey. Groundwater in Southeastern Pennsylvania. Water Resources Report No. 2, reprint 1973.
7. Department of Environmental Resources, Office of Resource Management Bureau of Topographic and Geologic Survey. Engineering Characteristics of the Rocks of Pennsylvania. Environmental Geology, Report No. 1, 1982.
8. Spotts, Stevens, and McCoy, Incorporated, consultant to Bally. Bally Borough well logs from municipal well no. 3.
9. Sax, Irving. Dangerous Properties of Industrial Materials, fifth edition.

\*Site Inspection report is available in EPA files.

*Sue Russell*  
*July 12, 1985*

AR100029

100029

ORIGINAL

Reference  
Number

Description of the Reference

(red)

10. U.S. Geologic Survey. East Greenville, Manatawny, Boyertown, and Sassmansville, Pennsylvania Quadrangles, 7.5 Minute Series. Topographic Map. (Three-mile radius for population count added by NUS Corporation.)
11. Telecon between Eugene Smith (Bally Borough Manager) and Laura Boornazian (EPA Region III) dated 7/10/85.
12. Spotts, Stevens, and McCoy, Incorporated, consultant to Bally Borough. Correspondence. February 2, 1983. (Concerning the fact that municipal well no. 3 is contaminated.)
- 13 Results of 6/25/85 sampling; analysis performed by Spotts, Stevens and McCoy, Inc.

*Sue Russell*  
*Sept. 9, 1985*

AR100030

100000

PA-942

**ORIGINAL**  
(red)

The attached pages were substituted for revised ones based on new info. received after this version was reviewed by Mitre. The new info. related to well sampling which turned up chloroform, thereby raising the toxicity value and the overall score.

Laura Boornazian  
9/12/85

AR100031

1000002

**ORIGINAL**  
(red)

**Facility Name:** Bally Site

**Location:** Route 100, Bally, Pennsylvania

**EPA Region:** III

**Person(s) in Charge of the Facility:**

**Name of Reviewer:** Charles Meyer      **Date:** June 27, 1985

**General Description of the Facility:**

The Bally Site consists of the borough of Bally well field, located off Route 100. The Bally well field is the public water source for the borough of Bally and uses groundwater, as do all domestic and municipal supplies within a 3-mile radius. Well no. 3 in Bally's system was found to be contaminated with up to 3,000 ppb trichloroethylene from an unknown source.

Scores:     $S_M = 31.94$                       ( $S_{gw} = 55.26$                        $S_{sw} = 0$                        $S_a = 0$ )  
                  $S_{FE} = 0$   
                  $S_{DC} = 0$

**FIGURE 1**  
**HRS COVER SHEET**

*See Russell*  
*July 12, 1985*

100032

AR100032

# ORIGINAL

(red)

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)	Multi- plier	Score	Max. Score	Ref. (Section)	
<b>1</b> Observed Release	0                      45	1	45	45	3.1	
If observed release is given a score of 45, proceed to line <b>4</b> . If observed release is given a score of 0, proceed to line <b>2</b> .						
<b>2</b> Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 3	2		6		
Net Precipitation	0 1 2 3	1		3		
Permeability of the Unsaturated Zone	0 1 2 3	1		3		
Physical State	0 1 2 3	1		3		
Total Route Characteristics Score				15		
<b>3</b> Containment	0 1 2 3	1		3	3.3	
<b>4</b> Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 <b>15</b> 18	1	15	18		
Hazardous Waste Quantity	0 <b>1</b> 2 3 4 5 6 7 8	1	1	8		
Total Waste Characteristics Score			16	26		
<b>5</b> Targets					3.5	
Ground Water Use	0 1 2 <b>3</b>	3	9	9		
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 <b>20</b> 24 30 32 <b>35</b> 40	1	35	40		
Total Targets Score			44	49		
<b>6</b> If line <b>1</b> is 45, multiply <b>1</b> x <b>4</b> x <b>5</b> If line <b>1</b> is 0, multiply <b>2</b> x <b>3</b> x <b>4</b> x <b>5</b>			31,680	57,330		
<b>7</b> Divide line <b>6</b> by 57,330 and multiply by 100			S <sub>gw</sub> = 55.26			

FIGURE 2  
GROUND WATER ROUTE WORK SHEET

*Sue Russell*  
*July 12, 1985*  
 200033  
 AR100033



# ORIGINAL

(red)

	s	s <sup>2</sup>
Groundwater Route Score (S <sub>gw</sub> )	55.26	3053.67
Surface Water Route Score (S <sub>sw</sub> )		
Air Route Score (S <sub>a</sub> )		
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3053.67
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		55.26
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		31.94

FIGURE 10  
WORKSHEET FOR COMPUTING S<sub>M</sub>

*Sue Russell*  
*July 12, 1985*

AR100034

ORIGINAL

(red)

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

tetrachloroethane  
1,1,1-trichloroethane  
trichloroethene  
1,1-dichloroethene

Rationale for attributing the contaminants to the facility:

The borough of Bally uses a well field which showed the presence of high concentrations of the aforementioned organic contaminants in well no. 3 and/or a monitoring well located 1,000 feet from municipal well no. 3. A home well located 1,000 feet to the northeast of well no. 3 also indicated high levels. Two thousand feet to the north of well no. 3, municipal well no. 1 shows low-level contamination. At the present time, a source of contamination has not been confirmed.

Reference no. 2

\* \* \*

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifer(s) of concern:

Municipal well no. 3 was drilled into the Brunswick Formation. According to the Atlas of Preliminary Geologic Quadrangles, East Greenville Quadrangle, the well can be found straddling the Hardyston Formation and the Brunswick Formation. The Brunswick Formation, as an aquifer, ranges in depth from 18 to 500 feet deep. Surrounding geology includes the Hardyston Formation, Leithsville Formation, Limestone Fonglomerate, and gneiss. The geologic units in the vicinity of the site are hydrologically connected. The description of the units in reference no. 7 indicates that all the rock formations have a moderate abundance of fractures. The Brunswick, Hardyston, and Leithsville Formations are fractured in a block type pattern. The granitic gneiss and Limestone Fonglomerate units have an irregular joint pattern. The fractures for all the formations are steeply dipping to vertical and are open. These fractures would interconnect across the rock formation boundaries. Evidence of this condition is a smooth gradient of the water table as it crosses from one formation to another. If these formations were not hydrologically connected, there would likely be a recognized significant change in the well water levels across the geologic formations.

Reference nos. 3, 4, 5, 6, 7, and 8

Sue Russell  
July 12, 1985  
AR100035  
100005

### 3 CONTAINMENT

ORIGINAL  
(red)

#### Containment

Method(s) of waste or leachate containment evaluated:

N/A

Method with highest score:

N/A

\* \* \*

### 4 WASTE CHARACTERISTICS

#### Toxicity and Persistence

Compound(s) evaluated:

	<u>Toxicity</u>	<u>Persistence</u>	<u>Matrix Value</u>
tetrachloroethene	2	2	12
1,1,1-trichloroethane	2	2	12
trichloroethene	2	2	12
1,1-dichloroethene	3	2	15

Compound with highest score:

1,1-Dichloroethene was the highest score with an assigned value of 15.

Reference nos. 1 and 9

#### Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

The total quantity of waste disposed is unknown because the source of contamination is unknown. However, since contamination has been detected, an assigned value of 1 was used for scoring.

Reference nos. 1 and 2

Basis of estimating and/or computing waste quantity:

There is waste present but the amount and source are unknown.

A value of 1 was assigned.

Reference nos. 1 and 2

Sue Russell  
July 12, 1985  
AR100036

ORIGINAL

Reference  
Number

Description of the Reference (red)

10. U.S. Geologic Survey. East Greenville, Manatawny, Boyertown, and Sassmansville, Pennsylvania Quadrangles, 7.5 Minute Series. Topographic Map. (Three-mile radius for population count added by NUS Corporation.)
11. Telecon between Eugene Smith (Bally Borough Manager) and Laura Boornazian (EPA Region III) dated 7/10/85.
12. Spotts, Stevens, and McCoy, Incorporated, consultant to Bally Borough. Correspondence. February 2, 1983. (Concerning the fact that municipal well no. 3 is contaminated.)

*Sue Russell  
July 12, 1985*

AR100037